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| 09/463,059      | 01/19/2000  | TATSUYA NAKANO       | 2224-163P           | 5816             |

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EXAMINER

THORNTON, YVETTE C

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

1752

DATE MAILED: 02/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/463,059

Applicant(s)

NAKANO, TATSUYA

Examiner

Yvette C. Thornton

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 04 December 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 9, 10 and 12-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 9, 10, 12-14, 17, 19 and 20 is/are rejected.
- 7) ☒ Claim(s) 15 and 18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

This is written in reference to application number 09/463059 filed on January 19, 2000.

***Response to Amendment***

1. Claims 1-8 and 11 have been cancelled. Claims 17-20 are newly added. Claims 9-10 and 12-20 are currently pending.

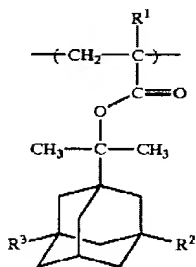
***Double Patenting***

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claims 10, 13, 17, 19 and 20 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-7 of U.S. Patent No. 6,440,636 B1. Although the conflicting claims are not identical, they are not patentably distinct from each other because both pertain to a compound having the structure



wherein R1 is hydrogen or a methyl group and R2 is a hydroxy group,

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which is an oxygen-containing group. Both references also teach a photoresist composition comprising a polymer comprising the said structure and a light activatable acid generator (i.e., photoactive acid precursor). One of ordinary skill in the art would have been motivated by the direction of the claims of US 6,440,636 B1 to make a compound comprising the said structure and to use that said compound in combination with a photoacid generator to make a photoresist composition. Claims 10, 13, 17, 19 and 20 are directed to an invention not patentably distinct from claims 1-7 of commonly assigned U.S. Patent No. 6,440,636 B1, as discussed above.

4. The U.S. Patent and Trademark Office normally will not institute an interference between applications or a patent and an application of common ownership (see MPEP § 2302). Commonly assigned U.S. Patent No. 6,440,636 B1, discussed above, would form the basis for a rejection of the noted claims under 35 U.S.C. 103(a) if the commonly assigned case qualifies as prior art under 35 U.S.C. 102(f) or (g) and the conflicting inventions were not commonly owned at the time the invention in this application was made. In order for the examiner to resolve this issue, the assignee is required under 35 U.S.C. 103(c) and 37 CFR 1.78(c) to either show that the conflicting inventions were commonly owned at the time the invention in this application was made or to name the prior inventor of the conflicting subject matter. Failure to comply with this requirement will result in a holding of abandonment of the application.

5. A showing that the inventions were commonly owned at the time the invention in this application was made will preclude a rejection under 35 U.S.C. 103(a) based upon the

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commonly assigned case as a reference under 35 U.S.C. 102(f) or (g), or 35 U.S.C. 102(e) for applications filed on or after November 29, 1999.

*Response to Arguments*

6. In response to the double patenting rejection, Applicants argue that the amended claims do not recite formula (2a-1), as did the former claim 1. The examiner maintains the position that the double patenting rejection is applicable. Specifically the limitations of claimed formula (1a) are met wherein R1 and R2 of formula (1a) are each an alkyl group having 1 carbon atom; and R4 is a hydrogen or hydroxy group as set forth in instant claim 17. In addition, the limitations of claimed formula (1a-1) are met wherein R4 is OH.

7. Further the examiner notes that formula (IIb) of US 6440636 (see cl. 1) meets the limitations of claimed formulae (2a) and (2a-1) of the instant claims when R7 and R8 are each independently a hydrogen atom, a hydroxyl group or an oxo group.

8. The double patenting rejection is maintained.

*Claim Rejections - 35 USC § 102*

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

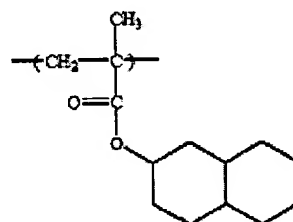
(f) He did not himself invent the subject matter sought to be patented.

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10. Claims 10, 12-14, 17 and 19-20 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Aoai et al. (US 6245485 B1). Aoai teaches a positive resist composition comprising (A) a compound generating an acid upon irradiation of an active light ray or radiation, (B) a resin having a polycyclic type alicyclic group and a carboxyl group and (C) a compound having at least two groups having a specific structure (see abstract). Component A is a photoacid generator capable of generating an acid upon irradiation with light such as UV, far-UV, g-line, i-line, h-line, KrF excimer, ArF excimer, e-beam or x-ray. Suitable examples include oxazole derivatives (PAG1), s-triazine derivatives (PAG2), iodonium salts (PAG3), sulfonium salts (PAG4), disulfone derivatives (PAG5) and iminosulfonate derivatives (PAG6) (c.65, l. 21-c. 81, l. 10). The photoacid generator is added in the amount of 0.001-40 weight %, preferably 0.01-20 weight % (c. 81, l. 11-16). The taught composition is coated on a substrate for use in the production of an integrated circuit, exposed through a predetermined mask, baked and developed to obtain a good resist pattern (c. 84, l. 53-58).

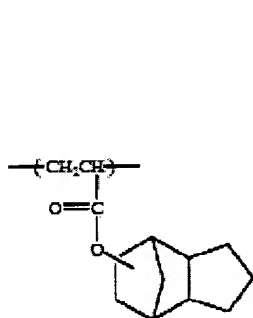
The polycyclic type alicyclic group contained in the resin (B) is preferably an alicyclic group having 5 or more carbon atoms, which may have a substituent. The resin component (B) preferably has a repeating structural unit having a polycyclic type alicyclic group on the side chain thereof, represented by formula (XXII), (XXIII) or (XXIV). The carboxyl group maybe contained in the said polycyclic unit or in a repeating unit different therefrom (c. 9, l. 20-30). Structures representative of the polycyclic type alicyclic moiety are shown as structures (1) – (46) (c. 10, l. 60-c.15, l. 29). Specific examples of repeating units

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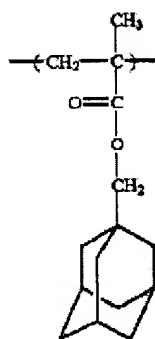


represented by formula (XXII)-(XIV) include:

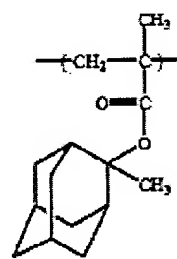
(a3),



(a10),



(a19) and

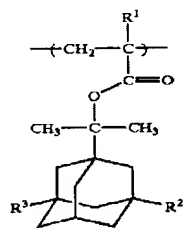


(a20) (c. 16-

19). It is the examiner's position that the given formula (a20) meets the limitations of claimed formula (2a) wherein R1 is CH3, which is an alkyl group and R4 is hydrogen.

The examiner notes that claim 17 as written does not require R4 to be an oxygen-containing compound.

11. Claims 10, 13, 17 and 19-20 are rejected under 35 U.S.C. 102(f) because the applicant did not invent the claimed subject matter. As discussed in the double patenting rejection above, the claims of US 6440636 B1 teaches a compound and composition thereof



having the structure

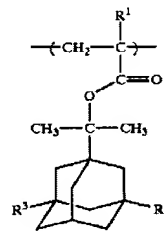
. However, the inventive entity of the said reference is

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different than that of the present invention. Thus, leading the examiner to believe that the inventor of the present application did not invent the claimed invention.

### *Response to Arguments*

12. In response to the 102(f) rejection, Applicants argue that the Nakano made the present invention prior to the Japanese priority dates of May 25, 1998 and August 28, 1998 and finds no evidence that the inventor of the present application did not invent the claimed invention of the present application. The examiner maintain the rejection under 35 USC 102(f). The instant application and the prior art reference to Ushirogouchi et al. (US



6440636 B1) both pertain to compounds having the structure . However the present inventor, Nakano is not listed in the inventive entity of the said reference.

Therefore, the examiner questions whether Nakano did himself invent the invention of the present application. The MPEP states that “[i]t is incumbent upon the inventors named in the application, in reply to an inquiry regarding the appropriate inventor under subsection (f). . .to provide a satisfactory showing by way of affidavit under 37 CFR 1.132 that the inventorship of the application is correct in that the reference discloses subject matter invented by the applicant rather than derived from the author or patentee notwithstanding . . .the inventorship of the patent.” See MPEP 2137. Absent a declaration under 37 CFR 1.132, the 102(f) rejection is maintained.



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13. Applicants further argue that since the 102(e) date of the prior art (US 6440636 B1) is subsequent to the filing date of the present invention, the said reference is not prior art. The examiner notes that US 6440636 B1 was not used against the applicant in a rejection under 35 USC 102(e). The 102(e) date has no bearing on the double patenting rejection of record (MPEP 804.03 II) or on the 102(f) rejection (MPEP 2137).

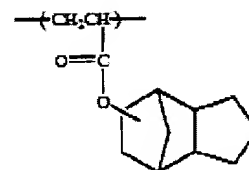
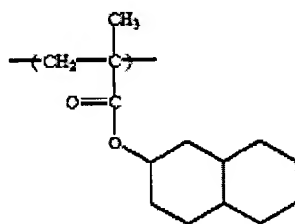
***Claim Rejections - 35 USC § 103***

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. Claims 9, 16 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aoai (US 6,245,485 B1), as applied to claims 10, 12-14, 17 and 19 above.

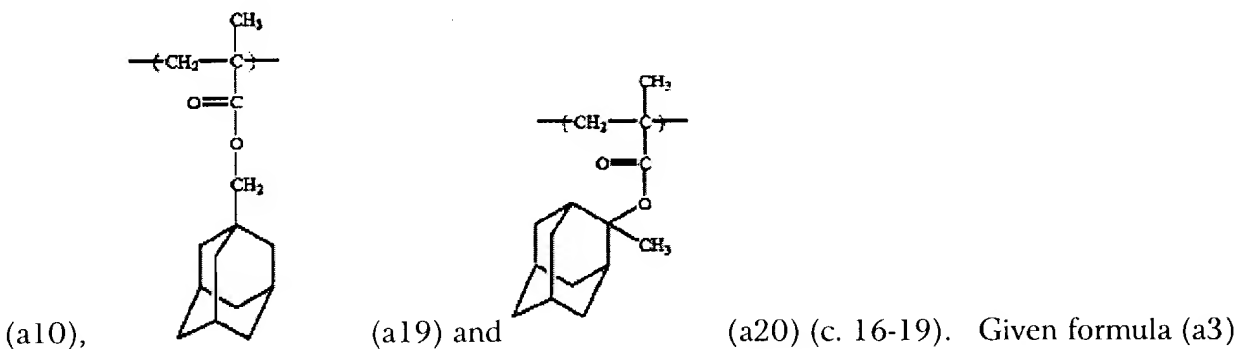
As discussed above, Aoai teaches that specific examples of repeating units represented



by formula (XXII)-(XIV) include:

(a3),

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and (a10) meet the limitations of claimed formula (2d) and (2e), respectively and formula (a20) meets the limitations of claimed formula (2a).

Aoai fails to exemplify the said compounds having an oxygen-containing substituent off of the polycyclic ring. Aoai does however teach that preferred substituents of the polycyclic type alicyclic group include a hydroxyl group, a halogen atom, a nitro group, a cyano group, an amido group, and a sulfonamido group, alkoxy groups having 1-8 carbon atoms and alkyl groups having 1-8 carbon atoms (c. 10, l. 47-59). It is the examiner's position that one of ordinary skill in the art would have been motivated by the teaching of Aoai to make the taught polycyclic type resin (B) any of the disclosed structures such as (a3), (a10), (a19) or (a20) which are substituted with the preferred substituents including a hydroxyl group, or an alkoxy group having 1-8 carbon atoms in order to form a composition suitable for exposure using a light source of 220 nm or less and has a high sensitivity, good resolution and a high resistance against dry etching (c. 3, l. 40-51). Although, Aoai does not explicitly teach the specific compound of instant claim 16, one of ordinary skill in the art could readily envision a compound of formula (a10), which is substituted with a hydroxyl group or an alkoxy group.

*Response to Arguments*

16. Applicant's arguments have been fully considered but they are not persuasive. Applicants argue that the Aoai fails to teach and/or suggest a combination of a specific unit  $CR^1R^2$  and an oxygen-containing group substituted on an adamantane backbone. The examiner respectfully disagrees. While the cited prior art fails to exemplify such a compound, Aoai clearly teaches a base resin comprising a polycyclic type alicyclic group on the side chain thereof, represented by formula (a3), (a10), (a19) or (a20). Aoai further teaches that the said polycyclic group maybe substituted wherein the preferred substituents include substituted with the preferred substituents including a hydroxyl group and an alkoxy group having 1-8 carbon atoms. One of ordinary skill in the art would have been motivated by the teachings of Aoai to make the taught polycyclic type resin (B) any of the disclosed structures such as (a3), (a10), (a19) or (a20) which are substituted with the preferred substituents including a hydroxyl group, or an alkoxy group having 1-8 carbon atoms in order to form a composition suitable for exposure using a light source of 220 nm or less and has a high sensitivity, good resolution and a high resistance against dry etching (c. 3, l. 40-51).

17. Applicants state that units (a19) and (a22) of Aoai fail to meet the limitations of the instant claims. The examiner agrees that units (a19) and (a22) fail to teach the linking group  $CR^1R^2$  wherein  $R^1$  is hydrogen, alkyl or cycloalkyl and  $R^2$  is an alkyl or cycloalkyl group. However, unit (a20) of Aoai meets the limitations of claimed formula (2a) wherein  $R^1$  is  $CH_3$ , which is an alkyl group and  $R^4$  is a hydrogen group. Claim 17 as written does not require  $R^4$  to be an oxygen-containing group.

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18. Applicants also argue that the prior art fails to teach the substituent being at a bridgehead position of the alicyclic ring. The examiner is of the position that in regard to formula a20, there are 9 possible substitution positions, 4 of which are bridgehead. One of ordinary skill in the art could readily envision an alicyclic compound of the said formula, which is substituted at the bridgehead position. Applicants argue that the bridgehead/non-bridgehead substitution is not the sort of "similar properties" position isomerism that creates a prima facie case of unobviousness. While the examiner understands that the bridgehead position gives an attachment to a carbon attached to three other carbons, the examiner is not convinced that this knowledge would render substitution at the bridgehead position unobvious. One of ordinary skill in the art would have been motivated to substitute at any of the possible substitution positions of unit (a20). The examiner maintains the position that one of ordinary skill in the art could readily envisage an alicyclic compound of formula (a20) substituted at the bridgehead position with the preferred substituents of Aoai.

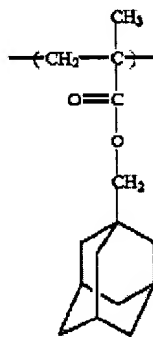
19. Applicants further argue that the present invention has unexpected results and that substitution at the bridgehead position serves to increase adhesion to a substrate. The examiner has failed to find any evidence to support the claim of unexpected or superior results in comparison with the closest prior art.

*Allowable Subject Matter*

20. Claims 15 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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21. The following is a statement of reasons for the indication of allowable subject matter: review of the prior art failed to disclose the specific compound of instant claim 15. Aoi



teaches a compound having the general structure

(a19). However, it fails

to teach a compound wherein the claimed R1 substituent is an isopropyl group and the R2 substituent group is a methyl group. The prior art also failed to teach a compound wherein R1 is hydrogen and R2 is a straight or branched C1-4 alkyl group. One of ordinary skill in the art would not have been motivated nor would it have been obvious to change the taught hydrogen groups for an isopropyl group and a C1-4 alkyl group as set forth in the instant claim.

### Conclusion

22. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

23. A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee

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pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action.

In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

24. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yvette C. Thornton whose telephone number is 571-272-1336. The examiner can normally be reached on Monday-Thursday 8-6:30.

25. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark F. Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

26. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-1300.



Yvette Clarke Thornton  
Patent Examiner  
Art Unit 1752

yct  
February 4, 2004